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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEVITAN, DMITRY

ART UNIT PAPER NUMBER

2662

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/818,525	Applicant(s) YOU ET AL.	
	Examiner Dmitry Levitan	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-17 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 11 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/29/04</u> . | 6) <input type="checkbox"/> Other: ____. |

Drawings

1. The drawings are objected to because of typographical error on Fig. 12, text in block 4A-1.
2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. Examiner believes that “conventional art” label is not appropriate. See MPEP § 608.02(g).
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: typographical errors on page 11, line 2 and page 15, line 15.

Appropriate correction is required.

Claim Objections

5. Claims 8, 10 and 15 are objected to because of the following informalities:

Claim 8 limitation "otuputtet" on line 9 seems a typographical error.

Claim 10 limitation "frm" on line 9 seems a typographical error.

Claim 15 limitation "a multiplier.. transmits it to the two base stations" seems a typographical error. Examiner believes that the correct limitation should be "multipliers..", because two multipliers 302-2 and 303-2 are disclosed on Fig. 11, communicating with two base stations.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9, 12, 13, 16-18 and 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 9 limitation "receiving signals other than the signals inputted to the first combiner among the signals outputted from the first demultiplexer and signals other than the signals outputted from the second multiplexer" is unclear, because it is not understood what signals does the second combiner receives.

Claim 16 limitation "performing rate matching at different rates for the codeword bit streams" is unclear, because it is not understood what "different rates" means in the context of the claim: if the rates are different for two output streams or the rates are different for input and output streams.

Claims 12, 13, 21 and 22 recite the limitation "the three signals outputted from the code combiner" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 step "receiving the signals classified by kinds and classifying them again by kinds" is unclear, because it is not understood as written.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 5, 7, 10, 14-16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Yi (US 5,978,365).

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10. Regarding claims 1, 2 and 14, Yi teaches a hand-off apparatus for a mobile system (Fig. 4 and 11:21-45) comprises a turbo coder to make transmission signal into two different transmission signals and transmit them to two base stations (turbo encoder 1002 on Fig. 10 and 19:64-67, 20:1-18).

11. Regarding claim 15, Yi teaches a code generator for generating a base station code for identifying the signal destined for corresponding base station (turbo encoder 502 on Fig 5 and coupled to base stations 505A and 505B, 12:15-26);
a multiplier for multiplying the signal and transmitting it to the base stations (modulating by the proper Walsh sequences 506 A and B as shown on Fig. 5).

12. Regarding claims 3, 5 and 16 (as understood), Yi teaches a hand-off apparatus for a down link communication system (Fig. 5 and 12:2-25) comprising
A first coder for coding an input bit stream and outputting it (encoder 602A on Fig. 6 and 13:57-63);

An interleaver for interleaving the input bit stream and outputting it (interleaver 601 on Fig. 6 and 13:64-67);

A second coder for coding an interleaved input bit stream and outputting it (encoder 602B on Fig. 6 and 13:57-63);

A first and a second rate matching algorithm processing units for receiving the output streams and generating outputs of different patterns by using a first and a second rate matching algorithms, respectively (puncturers 603 A and B on Fig. 6 and 7, 14:34-42, with Puncturing Patterns shown on Fig. 7); and

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A first and a second multiplexers for sequentially outputting the codeword streams generated by the first and the second rate matching algorithm processing units to two base stations, respectively (Multiplexers 604 and 605 on Fig. 6 and 7, 14:43-64).

In addition, regarding claim 5, Yi teaches the interleaver of his system as nonessential element (14:10-18).

In addition, regarding claim 16, Yi teaches performing rate matching at different rates (puncturing operation changes the rates of the output signal in comparison with the input signal).

13. Regarding claims 7 and 19, Yi teaches a method and a mobile receiver (receiver on Fig. 8 and 9 16:58-64), comprising:

A demultiplexer for receiving radio signal from two base stations (demultiplexer 802 on Fig. 8 and 16:60-65);

An analog receiver to convert the demultiplexed signal into an intermediate frequency signal and amplify it (analog receiver 803 on Fig. 8 and 16:64-67, 16:1-5);

A searching unit to search for pilot signal from the two base stations and compute a signal-to-interference ratio of it (searcher receiver 805 on Fig. 8 and 17:21-27 measuring interference spectral density);

A base station controller for discriminating from which base station the signal searched by the searching unit has been transmitted by using the computed value (control processor 816 on Fig. 6 and 17:28-34);

Rake receivers for inputting the signal transmitted from two base stations to a code combiner according to the base station controller (digital data receivers 804 A and B on Fig. 8 and 14:35-40, disclosed also as RAKE receivers 3:26-30);

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A code combiner for converting the two signals in combined data stream (packet/code combiner and iterative decoder 806 on Fig. 8 and 17:35-54); and

A repeating decoder to decode and output one data stream (packet/code combiner and iterative decoder 806 on Fig. 8 and 17:55-60 producing reliable voice signal sequence 807).

14. Regarding claim 10, Yi teaches:

a first demultiplexer for classifying the signals from one receiver (demux 901A on Fig. 9 and 18:1-5);

A second demultiplexer for classifying the signals from other receiver (demux 901B on Fig. 9 and 18:1-5) ;

A first and a second combiners for classifying the signals from the first and second demultiplexers and outputting them (code diversity combiner 904 on Fig. 9 and 18:6-45).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yi .

Yi substantially teaches all the limitations of claim 8:

a first demultiplexer for classifying the signals from one receiver (demux 901A on Fig. 9 and 18:1-5);

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A second demultiplexer for classifying the signals from other receiver (demux 901B on Fig. 9 and 18:1-5) ;

A first and a second combiners for classifying the signals from the first and second demultiplexers and outputting them (code diversity combiner 904 on Fig. 9 and 18:6-45).

Yi does not teach using deinterleaver to restore the signals from the second demultiplexer.

Official notice is taken that using deinterleaver to restore the signals is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use deinterleaver to restore the signals from the second demultiplexer to the system of Yi to improve the system operation in noisy environment by randomizing the signal.

17. Claims 4, 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi in view of TSG-RAN recommendation (TSG-RAN Working group 1(Radio) meeting #8, 12-15 October 1999, 3GPP).

Yi teaches all the limitations of parent claims 3, 5 and 16.

Yi does not teach matching algorithm with different initial offset values.

TSG-RAN recommendation teaches matching algorithm with different initial offset values (Introduction). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add matching algorithm with different initial offset values of TSG-RAN recommendation to the system of Yi to improve the system operation in noisy environment.

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Allowable Subject Matter

18. Claims 11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li	US006571369B1	Encoding in a communication system.
Li	US006519732B1	Error-correcting encoding apparatus.
Kim	US006437714B1	Channel encoding device and method.
Hottinen	US006353638B1	Method and system for digital signal transmission.
Ghosh	US006308294B1	Adaptive hybrid ARQ using turbo code.
Rowitch	US006304991B1	Turbo code interleaver.
Singhushana	US006292918B1	Efficient iterative decoding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dmitry Levitan
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